SOUTHEAST EDITION

ELECTRICITY ON THE *Farm Magazine*

MAY, 1960

Water on the Farm

water is wealth

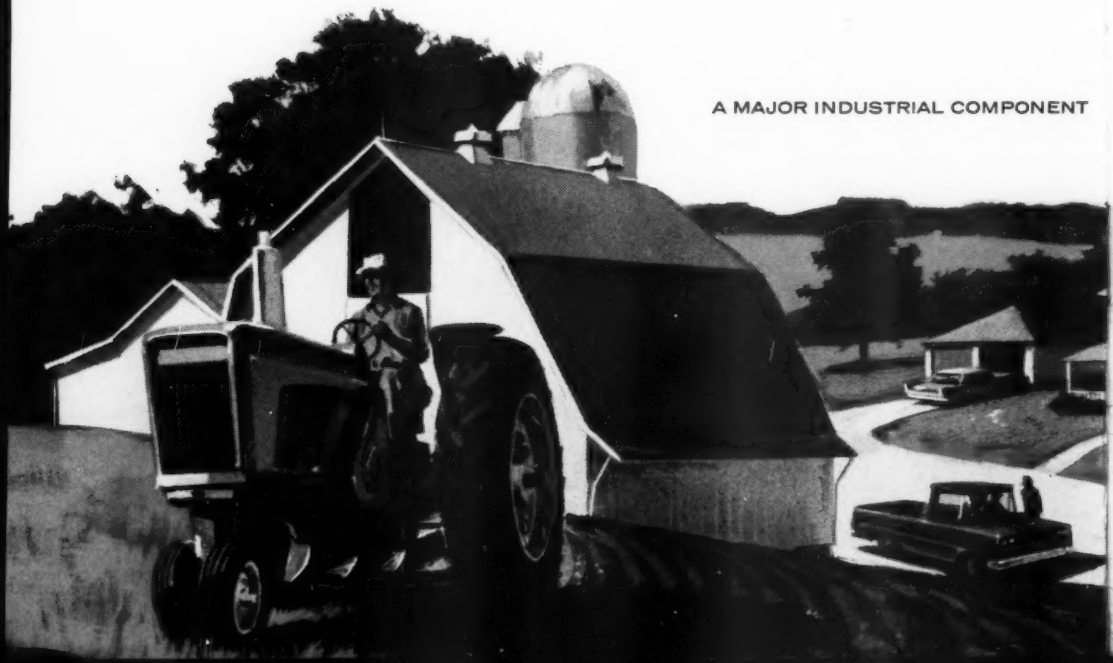
WATER is wealth! It saves steps, makes crops *and* farm animals more productive, lets the whole family get their chores done faster.

Milk and butterfat production are higher when herds get clean, fresh water *automatically* rather than once or twice daily. Hens lay more eggs, broilers gain weight faster when a constant water supply permits them to eat more dry mash.

A *planned* water system lets you use your time more profitably, too. You can handle more crops, more farm animals. And there's a lot of satisfaction just in knowing that farm and family are protected from fire.

Because water *is* wealth, when you select a home water system, or replace an inadequate or poorly planned one, here *of all places* it pays to buy the best!

That, of course, means Fairbanks, Morse—a name linked indelibly to quality by all Americans since 1830.



A MAJOR INDUSTRIAL COMPONENT

We build pumps for EVERY farm purpose . . . in more sizes, types, capacities than ANYONE! Because of this, you can be sure of getting the one unit that's best for you . . . whether you have five acres or a "King Ranch" . . . whether you need pumps for sump, drainage, spraying fertilizer, sprinkling lawns, watering farm animals, lifting or propelling water from canals or for irrigation of any type or scale . . . and you can be sure, too, many years from now, that F-M service and replacement parts will still be quickly available when needed!

Sit down with your nearby F-M dealer. Let him help you plan an *adequate* water system, one that spells profit and peace of mind. He knows, for example, that if you're likely to have four taps open at one time—as in garage, chicken house, home and barn—you need a pump that delivers 800 to 1000 gallons per hour.

Many F-M dealers have been handling Fairbanks, Morse equipment for two generations or more. They know that F-M pumps are the *least likely* to need repairs. Should that day come—what a relief to have a pump that can be repaired locally, and a friendly, experienced dealer who can quickly install a "loaner"!

Water is wealth. Put it to work for you in the best "bank" built . . . making your selection from our complete line of jet, submersible and "packaged" pumps for shallow, medium or deep well water systems!

It costs far less *to be right the FIRST time!*

Fairbanks, Morse

Pump and Hydraulic Division • Kansas City, Kansas

OF FAIRBANKS WHITNEY CORPORATION, NEW YORK

Are Your Water Needs too great for a water system . . . yet too small for a deep well turbine pump? Pomona "Little Chief" turbine lifts water 10 to 250 feet, handles 300 to 9000 gph from wells as small as 4 inch diam. Low initial cost, low cost per gallon, choice of 2, 3 or 5 hp electric motor drives. A favorite for duck ponds, swimming pools, and irrigating limited acreages combined with home water supply. Also built in submersible designs for depths to 500 feet or more, and capacities to 150 gpm.

F-M's Silent Submersible turbine pumps can be installed anywhere . . . even under pavement, in crooked wells, or at depths impractical for shaft-type pumps . . . in less time and with no costly pump house. Their capacity range: 25 to 5000 gpm. Absence of lineshaft assemblies, packing boxes and lubricating devices eliminates such periodic maintenance.

Work you'll never have to face again... thanks to KELVINATOR!

See how the wonderful PLUS found in Kelvinator products can help you end all such nasty, time-consuming jobs!

IN every product made by Kelvinator you'll find a wonderful plus not available in any other make at any price.

THE PLUS THAT ENDS PRE-SCRUBBING CLOTHES

No automatic washer, except Kelvinator, cleans clothes so thoroughly it makes pre-scrubbing by hand needless, yet is so gentle it can wash a paper napkin without tearing it.

Only Kelvinator gives you this new Deep Turbulent washing that energizes the wash-water itself to do the thorough cleaning without harsh agitator friction. Of course, you get lint filter and bleach dispenser, *all* the real important features!

THE PLUS THAT ENDS DIRTY OVEN CLEANING

Cooking, too, is much easier; and no electric range, except Kelvinator, has "Throw-Away" aluminum foil oven liners that end oven cleaning drudgery. Just take out soiled liners . . . slip in shiny new ones . . . in a few easy minutes!

THE PLUS THAT ENDS MESSY DEFROSTING

Kelvinator's simpler, more economical "No-Frost" system ends messy defrosting of the freezer as well as the refrigerator section! And tests show huge savings in electricity, nearly the cost of the refrigerator over the years.

As you can see, the Kelvinator plus gives you extra usefulness and superb quality . . . appliances built better to serve better.

It doesn't cost you a penny extra. But it *does* save your time, your labor, your disposition. See for yourself . . . at your nearest Kelvinator Dealer's.

Fabulous Foodarama by Kelvinator offers you an upright freezer and refrigerator in one cabinet. It's only 41 inches wide . . . costs much less than buying two separate units!

There's a PLUS for you in every appliance made by **Kelvinator**

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SOUTHEAST EDITION

ELECTRICITY
ON THE *Farm Magazine*

A REUBEN H. DONNELLEY PUBLICATION

MAY, 1960—VOL. 33, NO. 5

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EDITORS' CHAT

WATER ON THE FARM

Water is one of Nature's most valuable gifts to man. It is present in the air as high as he flies and in the earth as deep as he digs. On the farm, it is the life blood of agriculture. We must have it both to live on the farm and to raise livestock and produce.

Since a good, workable water system is the lifeline of your farm, choose it with care. Above all, plan for the future as well as the present. Remember that your system must have the capacity and ability to give you all the water needed or wanted at adequate pressures to assure a full, even flow from every faucet. If your water system is obsolete, it's more of a nuisance than a help. It may be preventing you from using equipment that should be added to your operations. Get professional help in evaluating and upgrading your present system. Both extension and power supplier representatives or your reputable water systems dealer can offer free help with your plans to insure you of the best possible water supply.

The more things we can let water and electricity do for us, the higher the standard of living on the farm becomes. Because of the many vital roles water plays in our everyday work and living, we have devoted a number of articles in this issue to showing you how to use or handle water around your farm and in your home.

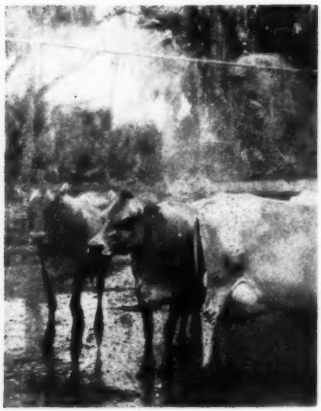
Your family and your farm operation deserve the best. Don't put it off. Enjoy completely modern living with all the fresh, clean water you need. ALBERT MORRIS

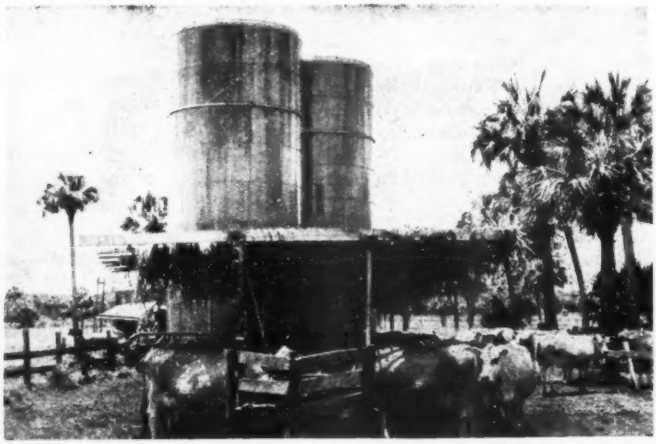
OUR PUBLISHER HAS A BIRTHDAY

This month is the Diamond Anniversary of the Reuben H. Donnelley Corporation, publisher of ELECTRICITY ON THE FARM. Besides its Magazine Publishing Division, the Donnelley Corporation is active in telephone directory sales and publishing, in direct mail, merchandising and other functions. During these past 75 years, the Donnelley name has come to be accepted as representing the very highest standard of service and integrity in these various fields. This emblem is our continuing guarantee of dedicated service to you, our readers, in the years to come. HUGH HANSEN

Cows Get a Warm Meal 3 Times Daily

Glass-lined storages
deliver warm silage
mechanically to Florida herd





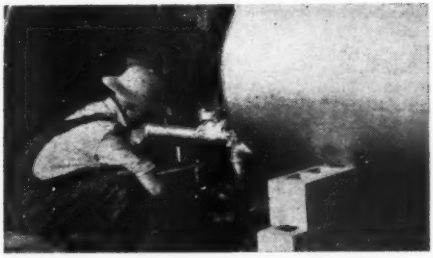
Above: Silage from glass-lined, bottom-unloading storage structures is fed to 150 cows. Pangola grass may be added to silos any time they have room, since with the bottom unloading, what goes in first also comes out first. **At left,** cows are cooled before entering milking parlor by walking under spray nozzles.

Cows are just a little bit human, declares Mrs. Elbert Kammack. They enjoy a warm meal in winter. And the dairy which she and her husband operate at Geneva, Florida, is the only one she knows of where the entire herd gets not one, but three warm meals a day.

The Kammacks have two glass-lined, bottom-unloading silage storages that hold up to 200 tons each. The silage that comes from these is warm, and the cows get it morning, noon and night. The unloader is driven by a 5 hp capacitor motor. A bunk feeder moves it along to the cattle.

Grass from 160 acres of pasture is harvested with a silage chopper and taken directly to the storages. Because the moisture content is some 15 or 20% too high to make the best silage, Kammack adds 250 lbs. of citrus pulp to each ton of grass. The pulp absorbs moisture, acts as a preservative and improves the odor and taste of the silage. □ □

COVER STORY...



Valve on 550-gallon pressure tank is opened by Jennings to permit flow into irrigation pipes. He says system supplies enough pressure for 8 sprinklers at once. He can apply ½ to ¾-inch of water in three hours.

Irrigated Garden Is a Fruitful Hobby

Gardening is a fruitful hobby for B. H. Jennings of Chester, Virginia. He makes it so by using a sprinkler irrigation system to get his vegetable crops started and keep them growing through summer droughts.

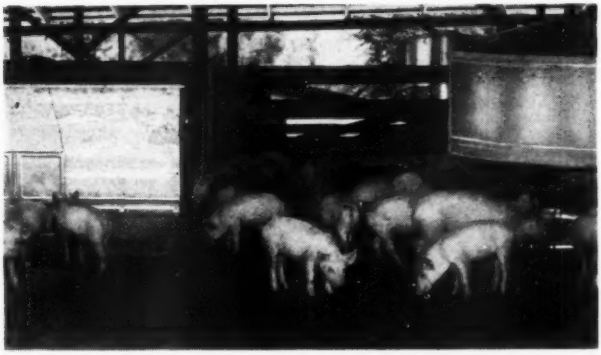
He has vegetables aplenty for the family, for canning to meet winter's needs, for sharing with friends, and enough left over for market to insure that his hobby will be self-supporting. If they get enough moisture, crops like tomatoes and beans planted in early spring will bear until frost, Jennings says.

The Virginian is fixed so that he can irrigate up to five acres. Water comes from the same 182-ft. well that supplies the farm residence. It is delivered into a 550-gallon pressure tank by a 7 hp electric pump. □ □

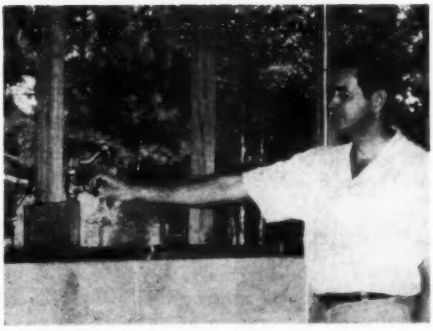
For growth, health and sanitation . . .

Confinement-Raised Hogs Depend on Plenty of Water

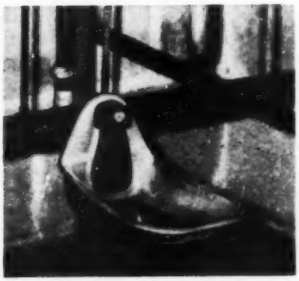
By S. H. BOOKER



Growing pens such as this are washed clean in minutes with water under 65 lbs. pressure on Springer's farm. Cleanliness in pens means healthier market hogs.



Cool hogs are healthier, faster gaining hogs, and Springer accomplishes the job by using fog nozzles over farrowing pens and in finishing parlor.



Above: Automatic watering fount in each farrowing pen is supplied by plastic pipe.

Left: Submersible pump in 475-ft. well delivers water to pressure tank. Note no part of pump is aboveground.

When hogs are confined for farrowing and feeding, success depends in large measure upon the water supply. There must be plenty of it for cleaning as well as drinking.

Doyle Springer of Dothan, Alabama, says he would not attempt a hog operation like his without an abundant supply of good water. He has capacity for 78 sows, three boars, and 400 feeder pigs. During the summer he estimates that he uses 5000 gallons of water per day.

This water is pumped from a 475-ft. well by a 2 hp submersible pump that will deliver 590 gallons per hour. A 220-gallon pressure tank allows use of a relatively large amount of water without the pump having to start, thereby avoiding frequent starting and stopping of the motor. As an aid to sanitation, water for washing pens is kept under 65 lbs. of pressure.

For cooling both the farrowing house and feeding parlor, Springer uses ⅜-in. fog nozzles that spray at the rate of 2 gallons per hour. One nozzle serves each 8 x 10-ft. farrowing pen. Sows are more comfortable, says Springer, because of the evaporative cooling effect and the damp concrete. Each of the 26 pens also has an 8 x 10-ft. sun porch, a farrowing crate with one removable side, an automatic watering fount for the sow, and a feeder.

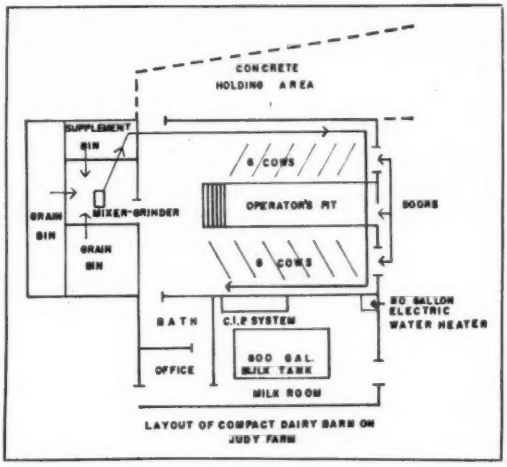
When six weeks old, the pigs are moved into the finishing barn. There are eight 20 x 35-ft. pens in the parlor. A 12-ft. driveway between the pens allows the augering of feed from trucks directly into self-feeders.

For extending water lines, Springer says he elected to use plastic pipe because it is easier and faster to install, has less friction loss and does not corrode. A saw and screwdriver were the only tools needed for installation. The 1½-in. line to the feeding parlor was buried 24 inches to avoid damage from farm equipment driving over it. □ □

In herringbone parlor on family farm . . .

One Man Milks, Feeds 78 Cows In Two Hours

By ALBERT MORRIS, JR.



LAYOUT OF COMPACT DAIRY BARN ON JUDY FARM

One of the first herringbone milking parlors installed in the Southeast belongs to R. H. Judy and Sons at Millen, Georgia. They have been using it almost two years. During this time visitors from far and near have marveled at the speed and apparent ease with which one son, Glenn, handles the whole milking and feeding operation.

I arrived at the Judy farm about five o'clock in the afternoon. Glenn was on his way to the milking parlor. He took 30 minutes to show me around, pointing out features of the new barn. There was no need to ask whether he liked it. The answer was obvious from the way he talked.

At 5:30 he stepped into the operator's pit and pushed a button. A door opened and 12 Holsteins tromped in from the concrete-floored holding area just outside. Another push of a button and the door closed. The cows moved quickly into their positions and Glenn closed the gate behind the last one on either side of the double-6 herringbone.

Use Mechanical Feeding System

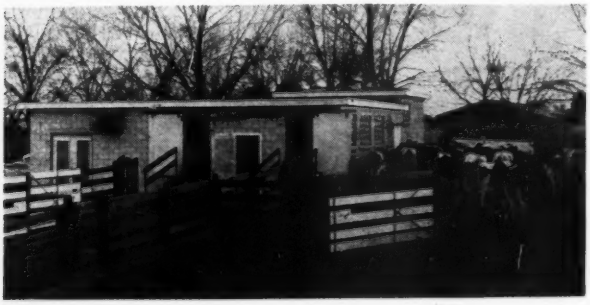
Then he glanced down the lines of cows and began pulling the 12 cords which caused individual portions of feed to be dropped for each Holstein. How much he pulled the cord determined how much feed a cow got.

The feed had hardly dropped from the chutes when the 4-inch augers began turning to replace what had been used. Their electric motors were activated by a micro-switch that also started the 2 hp mixer-grinder. Freshly-ground feed goes directly from this mill to the cows. Except for what is left in the augers from the previous milking, feed reaches the cows only minutes after it is ground.

Emphasis on Freshly-Ground Feed

Why? When feed is ground in larger amounts and fed over a period of days, says the elder Judy, dairy cows just don't go for the last portion like they did for the first. Judy has set himself up to give them the freshest feed possible.

His feed room is at one end of the milking parlor. Two storage bins for oats and corn can hold 350 bushels each. A third



Compact dairy barn on Judy farm includes herringbone parlor, feed storage and grinding area, milk room and office. Doors through which cows enter and leave parlor are operated mechanically.

bin is used for supplement. These ingredients are augered into hoppers above the mixer-grinder. When the mill is operating, the ingredients flow into it by gravity, and it will stop if any ingredient runs short. Motors on the feed room augers are totally enclosed for protection from dust.

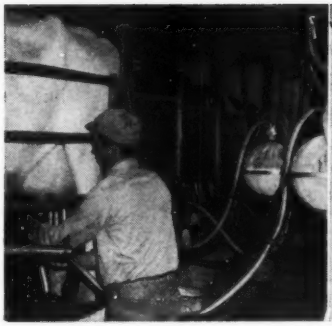
After grinding, the feed is augered down one side of the barn, across the end, and back up the other side. Feed chutes along the way are filled in the process.

Magnet Prevents Hardware Disease

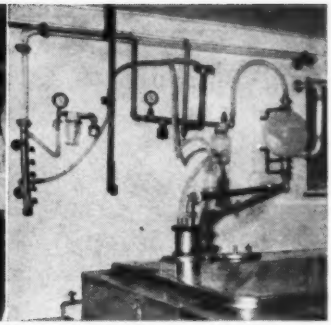
Judy has a magnet on his mill, which he estimates has removed a bucketful of scrap metal from his grain in two years. This magnet attracts metal which may be in the ingredients and keeps it from damaging the mill or getting to the cows.

With his feeding taken care of mechanically, Glenn can concentrate on milking. He washes the six cows along one side and puts on the milkers. Then he washes the animals on the other side. By this time the first cows have been milked. The milkers are swung across the pit and put on the second batch. Six cows leave, six more come in through the automatic doors. The feeding, washing and milking process is repeated, with no stooping or bending. A bucket and hose near each milking station expedites washing.

Cows angle away from pit, eat from individual hoppers. Feed is brought to them by augers driven by motors like the one in foreground.



In pit, operator doesn't have to stoop or bend to put on milkers. Units swing across pit to next cows to be milked.



Milk rushes through the pipeline to the 800-gallon bulk tank. Tank has a 1½ hp compressor to do the cooling job.

Everything Works on Vacuum

"Folks think this is a complicated system," Judy explained. "Actually it is very simple. Everything works by vacuum—the doors, milkers, etc."

By 7:30 Glenn had finished milking 78 Holsteins. He brought the milking units into the room where the 800-gallon bulk tank is located and set up the clean-in-place system which washes, sanitizes and rinses the milkers and pipelines mechanically.

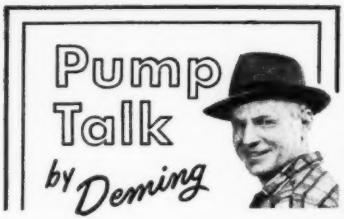
"We could operate faster," Glenn began, "But two hours is good time. I generally figure on spending a little longer to do a thorough job."

One of the keys to success in sanitation in the dairy is plenty of hot water, and the Judys get this from an 80-gallon electric water heater they say has never run short.

Prepared for Herd Expansion

Judy figures every cow is in the barn for a minimum of 12 minutes. This is more than enough time for eating. Some experts say a double-4 herringbone is as large as one man can handle. But the Judys put in the double-6 with the idea of expanding their herd and possibly having a second family member help in the operator's pit. Glenn feels that he could take care of 30 more cows without adding more than 30 minutes to his total milking time. □ □

80-gallon electric water heater supplies plenty of hot water for clean-in-place system for milkers and pipelines.



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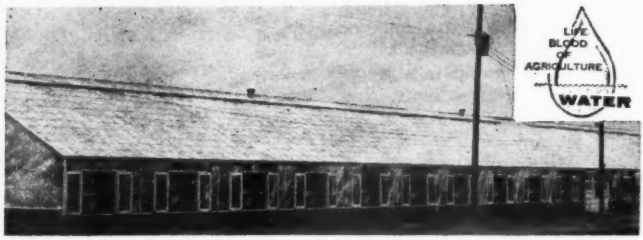


One fan every eleven feet keeps greenhouse cool and moist by drawing air in through moist pads on other side. House is 220 ft. long by 106 ft. wide.

'Mum' Greenhouse Is Long on Cooling

A pad-and-fan evaporative cooling system will lower the temperature inside a greenhouse up to 16 or 18° on a hot summer day. In addition to cooling, the system lowers the transpiration ratio of the plants.

To a grower of chrysanthemums like H. M. Dunn Jr. of Tuscaloosa, Alabama, these things are important. He specializes in fine cut flowers and aims to produce blossoms that are as nearly perfect as possible.

Dunn equipped the house with a pan-and-fan evaporative cooling system because this permits him to produce healthier, faster growing plants in summer. He finds ventilation is a must, and the system lets him have it without opening ventilators through which flying insects might enter. Too, working conditions in the greenhouse are far more comfortable.

The system consists of 20 fans, each a ⅓ hp, 42-inch unit capable of moving 10,500 cfm of air. These are located along the side of the building so that they draw air across the width. The air is pulled through aspenwood pads on the opposite side. A 1 hp self-priming centrifugal pump delivers water into a gutter from which it trickles continuously through the pads. □ □

We're Sorry!

On page 9 of our April issue a picture of a farm home appeared with the caption that it was the electrically-heated home belonging to the J. F. Fountain family of Cleveland, Alabama. Due to an error, the wrong picture was inserted above the caption. We're sure the Fountains are real proud of their new home (photo above), and we apologize to them for this error. —THE EDITOR

Two Ways to De-Fly Your Farm

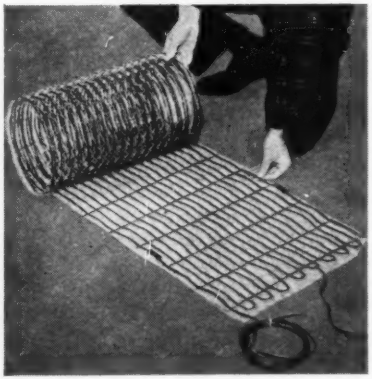
From time immemorial the farmer has been fighting flies. He is well aware of their disease-carrying ability, and the way they cut down on livestock production by annoying the animals.

With today's modern anti-insect devices, there is no reason why any farmer need put up with the loss and annoyance caused by millions of flies in hot weather. Here are two electric devices that do an exceptionally good fly-killing job on the farm.

Insect electrocutor that fits window like screen is in David Lutz's milk room at Newton, N. C. Transformer changes 115 volts to 9 milliamps and 3500 volts.

Spraying around barns to control flies is R. H. Abbey's use for 5 amp., 115-volt sprayer. Webb, Miss. dairyman runs it about 5 minutes in each room or barn. Unit has 3 speeds and automatic timer.

Cold weather at farrowing time can take a heavy toll of newborn pigs. Fewer pigs . . . less profit. Now, Electromode's electric heating mat can help cut losses. It radiates quick, instant heat throughout the pen the moment it's turned on. Keeps the floor as warm and dry as you want it, even in the coldest weather. Simply select the temperature you need; the heater keeps it there. With dependable Electromode mats, you can tend to other duties without a worry.



Electromode's electric heating mats are rugged mesh. They install right in the concrete, roll out for simple and fast one-man installation. Won't "float" as concrete is poured.

For more information call your Electromode dealer or electrical contractor. Or write: Electromode Division, Dept. EF-50, Commercial Controls Corporation, Rochester 3, New York.

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● Here's an arc welder that's perfectly suited for the farm workshop. It operates efficiently on REA and all rural lines and has all the ruggedness and power needed on the farm. And the low price will really surprise you.

What's more, it's so easy to use. Just a little practice and you're ready to make repairs on the spot . . . save costly welding bills . . . get rid of time consuming trips to town. Just check these Marquette '500' features:

● **EASY-TO-USE:** Starts quickly . . . Gives a steady, surge-free arc. Settings are indicated for pipe thawing, arc cutting and arc torch use. Dual welding heat settings are plainly marked, giving exact amperage needed.

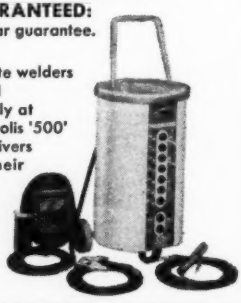
● **ECONOMICAL:** Marquette '500' is built to highest standards, yet costs *less* than most ordinary welders. No moving parts to wear.

● **WORKS ON LOW VOLTAGE:** Transformer gives full 20-180 Amp. capacity, even on low voltage power lines.

● **COMPLETE:** Marquette '500' comes complete with helmet, cables and wall receptacle. No extras to buy.

● **GUARANTEED:** Full 1 year guarantee.

Marquette welders are used exclusively at Indianapolis '500' Race. Drivers entrust their lives to Marquette welds.



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PLASTIC PIPE

WHY ..... WHERE ..... to use it HOW .....

LIFE BLOOD OF AGRICULTURE WATER

By ARTHUR J. RADWIN

Try lifting 200 feet of 2-inch pipe. If it's not plastic pipe you're tugging at, it'll put quite a strain on your back. If it is plastic pipe, you shouldn't have a bit of trouble.

Plastic pipe has most of the advantages of metal piping, without many of the disadvantages. In the past 10 or 15 years, it has been extensively used for farm water systems with much success.

Probably the biggest "plus" on the side of plastic pipe is its ease of installation. Once the ditch is dug, you can lay hundreds of feet of plastic pipe with no more tools than a sharp knife to cut the pipe and a screwdriver to tighten connection clamps.

A subsoiler attachment on a tractor allows you to quickly lay the pipe at the proper underground level. Or you can dig the ditch with a back-hoe machine and lay the pipe by hand. A 400 or 500-foot roll can be carried on one arm as you unroll it with the other—it's that light. The unbroken length of the roll makes for fewer connections, fewer fittings.

Making joints is easy. Special ribbed fittings of non-corrosive aluminum, stainless steel or plastic are clamped into the pipe.

90% of the plastic pipe today is made of polyethylene. Polyethylene is flexible, so pipe can usually be laid, without joints, over bumps, around corners and into depressions. Its rate of expansion is faster than that of freezing water, so it normally will not burst if laid above the frost line. Just for safety's sake, though, it's best to snake it in a trench below the frost line if possible.

Plastic pipe does not rust or corrode like metal. Since the inside surface is perfectly smooth, it doesn't build up lime or scale deposits. Water will not "wet" or adhere to slick inside surface either, so pressures are higher.

Most plastic pipe today is safe for all cold water uses, including home drinking water supplies. Pipe bearing the seal of the National Sanitation Foundation will not make water smell or taste, either. That seal is a good guarantee that the pipe is usable for human drinking water.

But plastic pipe is not built for certain applications. It will not act as a ground. Therefore it is not recommended for indoor

Trenches for plastic pipe can be very narrow, since the few connections needed can be made above ground.

Fittings for plastic pipe are made of plastic or non-corroding metal. Some are threaded on opposite end for connection to metal fixtures.

Installation in field is easy with subsoiler attachment. Pipe is laid at correct depth. UF cable can be laid at same time.

No pipe-threading with plastic pipe. Pipe is forced over ribbed fittings and clamps are tightened.

use. Metal pipe should extend at least 2 to 3 feet from a building before connection to plastic pipe. It's also a good idea to ground all plastic pipe installations by running a metal wire in the trench next to the pipe.

Plastic pipe will not handle hot liquids. At temperatures above 125°F. it softens. It is also oil-soluble, and should never be used anywhere it might come in contact with oil-bearing materials. Never use any oil product to lubricate fittings plastic pipe.

Polyethylene pipe will not handle pressures above about 80 lbs. per sq. in. When laying it, protect it from sharp rocks and jagged objects which could puncture or bruise it. It's often a good idea to cover the pipe first with soft earth before backfilling with heavy material. When the pipe goes under a driveway or road, protect it from heavy pressures by running it through a short section of metal pipe.

Plastic pipe costs about the same as galvanized iron piping, and is less expensive than copper. But it's in the installation cost that you really save. □ □

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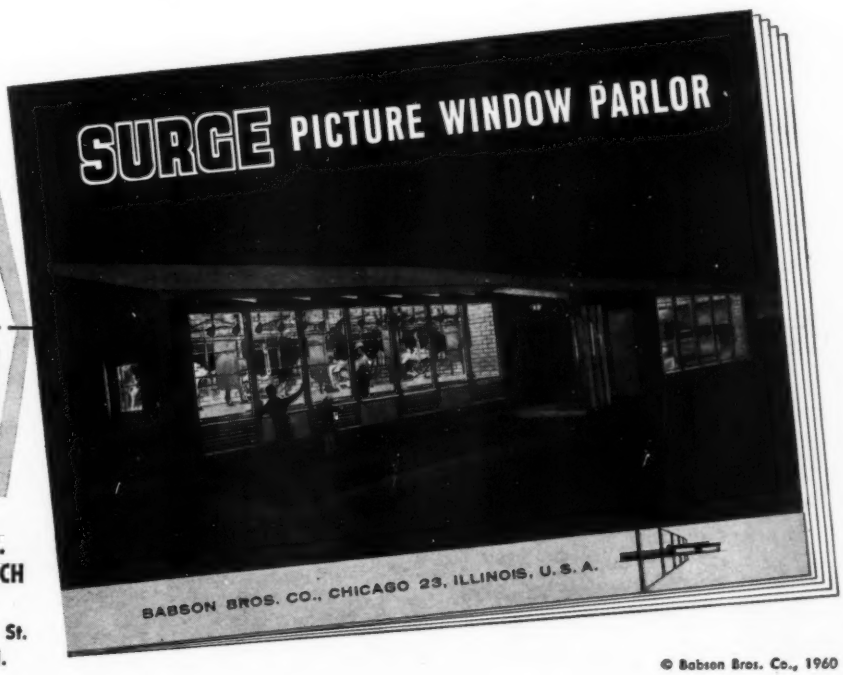

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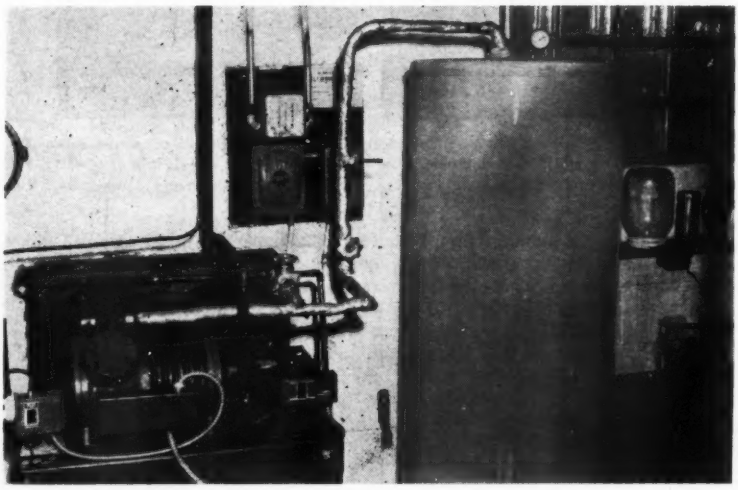
By C. N. TURNER*

Operates on heat-pump principle . . .

Heat Exchanger Lets Milk Warm Milkhouse Water



Exchanger, right, is connected to hot refrigerant line from compressor, left. Cold water is warmed in exchanger before going to electric water heater.

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RED JACKET WATER SERVICE PRODUCTS

WS-110

A more efficient method of heating water for the dairy farmer has been developed by using a new "heat exchanger" and the bulk milk cooler as a "heat pump." The result is more gallons of hot water for each KWHr of electricity. Waste heat normally thrown off by the condensing unit either to the air or down the drain can now be converted to hot water needed to wash pipelines and other modern milk handling equipment.

36-47% *Saving in Electricity*

A six months study† of the "heat exchanger" at the Webb Farm, Etna, N. Y., showed a 36 to 47% saving in the amount of electric energy otherwise required to heat water. The supply of hot water for Webb's new milking parlor—pipeline—bulk

*Professor of Agricultural Engineering, Cornell University.

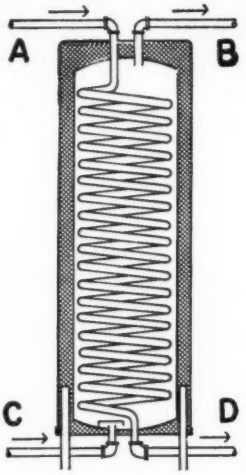

Diagram of exchanger shows how heated refrigerant enters tank at (A), then flows through coiled tubing. Cold water, entering tank at (C), flows around heated coils, picking up warmth, then leaves tank at (B) on way to water heater. Cooled refrigerant leaves at (D) to be recirculated to bulk tank compressor.

cooling system became adequate for the first time after installing the "exchanger." The bulk cooler also operated more efficiently during hot summer weather.

Heated Refrigerant Warms Water

The new "heat exchanger" is a 65-gallon insulated hot water tank with a refrigerant coil inside which collects and stores heat in the water before it reaches the present water heater. The electric "heat pump" principle is utilized to transfer heat from milk to preheat the water before it enters the regular water heater. Heat is "exchanged" from the milk to the refrigerant and pumped as a hot gas into the "exchanger" coils before it enters the air-cooled condenser.

The "exchanger" is connected to the cold water line ahead of the water heater and to the hot gas line from the compressor ahead of the air-cooled condenser. There are no moving parts or complicated installation procedures. A refrigerant pressure switch may be installed on the high side of the compressor to control the operation of the condenser cooling fans if desired, but this is not necessary.

The temperature of the water in the "exchanger" may rise to 100 or 180° or sometimes higher depending upon the amount of milk to be cooled in relation to the amount of hot water used. At the Webb Farm an average of 130 gallons of 165° water was used every day. An average of 1100 lbs. of milk was cooled each day and water temperatures in the "exchanger" tank reached 130-140° in summer and 100-110° in winter. This water was then heated to 165° in Webb's regular 120-gallon electric water heater.

About 2 months of data were accumulated at the Webb Farm with recording instruments before the "exchanger" was installed. The other 4 months of data were recorded with and without the "exchanger" in use by switching valves for comparable periods.

More Water—Better Cleaning

In summer the electricity used each day to heat 130 gallons of 165° water averaged 34 KWHrs without the exchanger in use and 18 KWHrs when it was "turned on." This represented a 47% saving and the 16 KWHr reduction was more than sufficient to cool his milk. Webb's increased hot water supply from the "exchanger" tank was welcomed for a more satisfactory job of cleaning and sanitizing his bulk tank

†A cooperative project conducted by the Dept. of Agricultural Engineering, New York Farm Electrification Council, Cooperative GLF Exchange, Inc., and New York State Electric & Gas Corp., Ithaca, New York.

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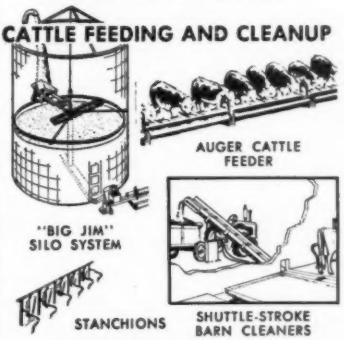
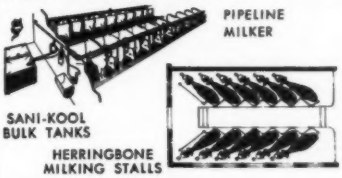
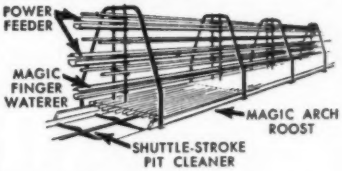


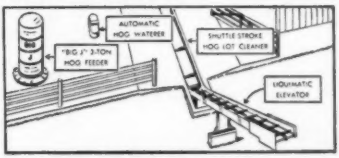
MILK PRODUCTION



EGG PRODUCTION



HOG PRODUCTION



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and pipeline milking equipment. Further, the recorded milk house temperatures were cooler in summer because most of the heat from cooling his milk went into the insulated "exchanger."

In winter the electricity used daily to heat 134 gallons of 165° water averaged 43 KWHrs when the "exchanger" was not in use and 27 KWHrs or a 37% saving when it was "turned on." The electricity required to cool the milk was the same with or without the exchanger in use during the cold weather periods.

Since Webb's ice-bank cooler had kept his milkhouse from freezing last winter, it seemed desirable to learn how much supplemental heat would now be required with the "exchanger" in use. A few comparable weather periods showed that 4 heat lamps over his washing sink and water pipes on thermostatic control used a few more KWHrs when the "exchanger" was in use. This would seem to indicate that a milkhouse heater may still be needed for those few cold days to keep the water pipes from freezing. However, the advantages of the "exchanger" for heating water every day in the year will be manyfold compared to the use of some supplemental heat to keep the pipes from freezing on the few coldest days in winter. In summer, the elimination of substantial quantities of heat from the milk house not only increases the efficiency and life of the compressor but provides more comfortable working conditions for the dairy operator.

Saved Over 350 KWHrs in a Month

A study of another "exchanger" installation was made on the Kelder Farm, Accord, N. Y. Prior to the use of the "exchanger" 395 KWHrs were used to heat 1500 gallons of water over a 31-day period. After the "exchanger" was connected only 5 KWHrs were required to heat 1300 gallons of water over a similar period.

With the rapidly increasing needs for hot water for automatic washing equipment on dairy farms where pipeline milking systems are being installed, a "heat exchanger" can help provide a more adequate supply and keep costs down. If the dairyman's present supply of hot water is not adequate the exchanger can be considered rather than the purchase of a larger or second water heater. It should soon pay for itself in savings in power costs. □ □

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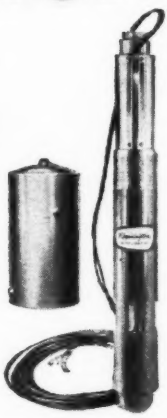

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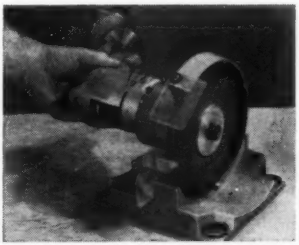
WHAT'S NEW

Drill-Powered Bench Grinder

A small bench grinder that can be powered by most ¾-inch portable electric drills is being made by Skil Corp., 5033 Elston Ave., Chicago 30, Ill. The unit incorporates Skil's "Snap/Lock" attachment feature, which permits the



drill to be simply snapped into place without any bolts, screws, clamps or other hardware.

Residential Wiring Guide

Practical Residential Wiring, by John F. Nowak, has been revised in its 2nd Edition to comply with the latest National Electrical Code. The book is a layman's guide to practical home wiring repairs and installations. It shows how to read wiring diagrams, how to use tools, all the way up to wiring a complete house. Available from D. Van Nostrand Co., Inc., 120 Alexander St., Princeton, N. J. 540 pages, $7.95.

Farmstead Film

Progress being made in farmstead efficiency, especially through the use of steel buildings and labor-saving mechanical equipment, is the topic of a new film, "The Farmstead Acre." Available free on a short-loan basis from Advertising Dept., Stran-Steel Corp., Detroit 29, Mich., the 16 mm. color and sound film tells how farmers can cut costs and build profits with more efficient buildings and machinery.

Septic Tank Manual

Parallel distribution in a septic tank disposal field isn't always best. This information comes from a supplement to the *Manual of Septic Tank Practice* (PHS No. 526), published by U. S. Public Health Service. Supplement explains new method of laying out disposal fields by "series" distribution. Send 35c to: Supt. of Documents, Gov't. Printing Office, Washington 25, D. C.

All-Auger Silo Unloader

A new silo unloader with all-auger design is reported to handle more silage with less power than conventional high-speed blower models by its maker, Berg Equipment Corp., Marshfield, Wisc. The machine uses three augers—

pick-up, vertical and discharge—powered by 2 and 3 hp motors.

Floor Vacuumer—Scrubber

An electric cleaning appliance that can be both a vacuum cleaner for bare floors or carpeting and a

scrubber for hard floor surfaces, is on the market this spring. The unit has a power unit handle which powers the interchangeable vacuum cleaner and floor scrubber attachments. The scrubber applies water and cleanser and then vacuums the dirty water off the floor. Manufactured by Bissell, Inc.

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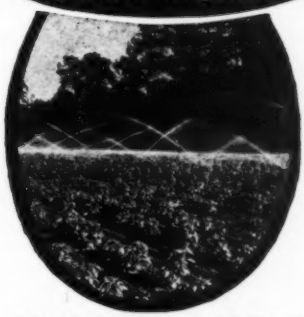

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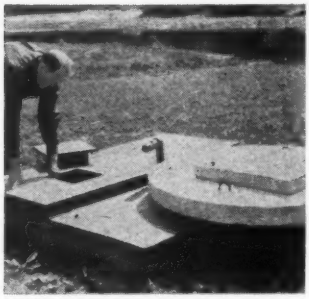
Sprinkler system keeps Calef's lawn lush and green. Underground pipe is neatly concealed under the turf.

Farm Pond Waters Lawn

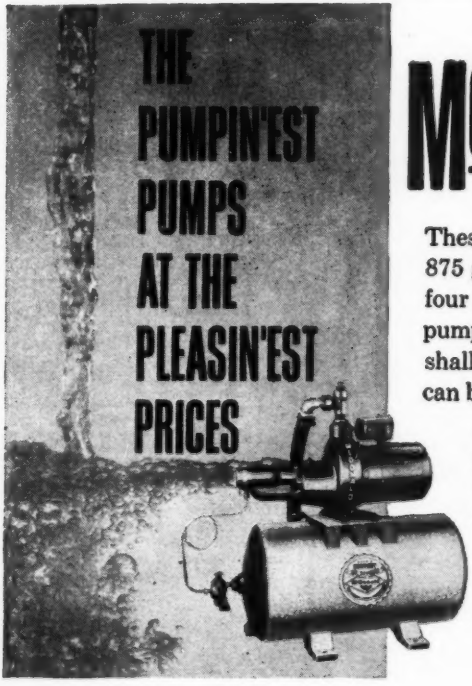
Farm ponds are good for fire protection as well as recreational purposes. But Leon Calef of East Barrington, N. H., goes one better. His 40 x 100-ft. pond, dug out of a swamp, waters his lawn automatically.

The water flows by pipe from the pond into a 10-ft. well equipped with a small hydrant for local fire department use. The well is located next to the driveway for easy access in winter. An underground pump is located beside the well. On the lawn around his home he installed underground pipes with exposed sprinkler heads.

When the lawn needs watering he lifts a small cover off the pumphouse and by pressing a button starts the pump to sprinkle the entire lawn with pond water. C. L. STRATTON.



Underground pump is started by Calef. Well at right under round cover draws water from pond, background, and pump draws water from well to sprinklers on lawn.



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Attractive, attention-getting approach signs and parking areas, well-lighted at night, bring customers. Poor lighting, inferior signs, and cramped or inconvenient parking may actually drive business away.

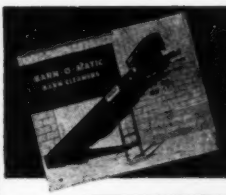
It takes the motorist time to decide to slow down, stop and shop. Approach signs should not be too near the market; 500 feet from the approach to the parking area has been found to be about the best location. Make signs readable from a distance and short in wording because the prospect is in a moving car.

Approach signs may be lighted from the ground with a fixed or adjustable floodlight base. Overhead lighting is done best with a bracket light or angle reflector aimed at the face of the sign. Every sign light should be shielded so the motorist will not be distracted or blinded.

The average motorist responds enthusiastically to a well-lighted parking area. It creates a warm, friendly atmosphere, providing a pleasant break in the monotony of a dark road. Put the lights on the driveway and parking area—not in the driver's eyes. Lights should be shielded and mounted on poles 16 or more feet high.

The exterior of the roadside market can become a highway attraction with proper use of light. Lights mounted on the underside of a canopy or eave will highlight exterior front or side walls painted with flat white for utmost reflection. The entire stand or building should be illuminated with specially placed spotlights and floodlights on poles or in trees surrounding the parking area.

Inside the stand, use lights to help display produce and indicate quality. Simple display lighting can be done with 150-watt flood lamps. Fluorescent lighting is best used as follows: deluxe cool white on fresh vegetables, fruits, meats, flowers; deluxe warm white on prepared foods such as chickens, pies, and baked goods. Spotlighting featured products will draw customers to particular displays. □□



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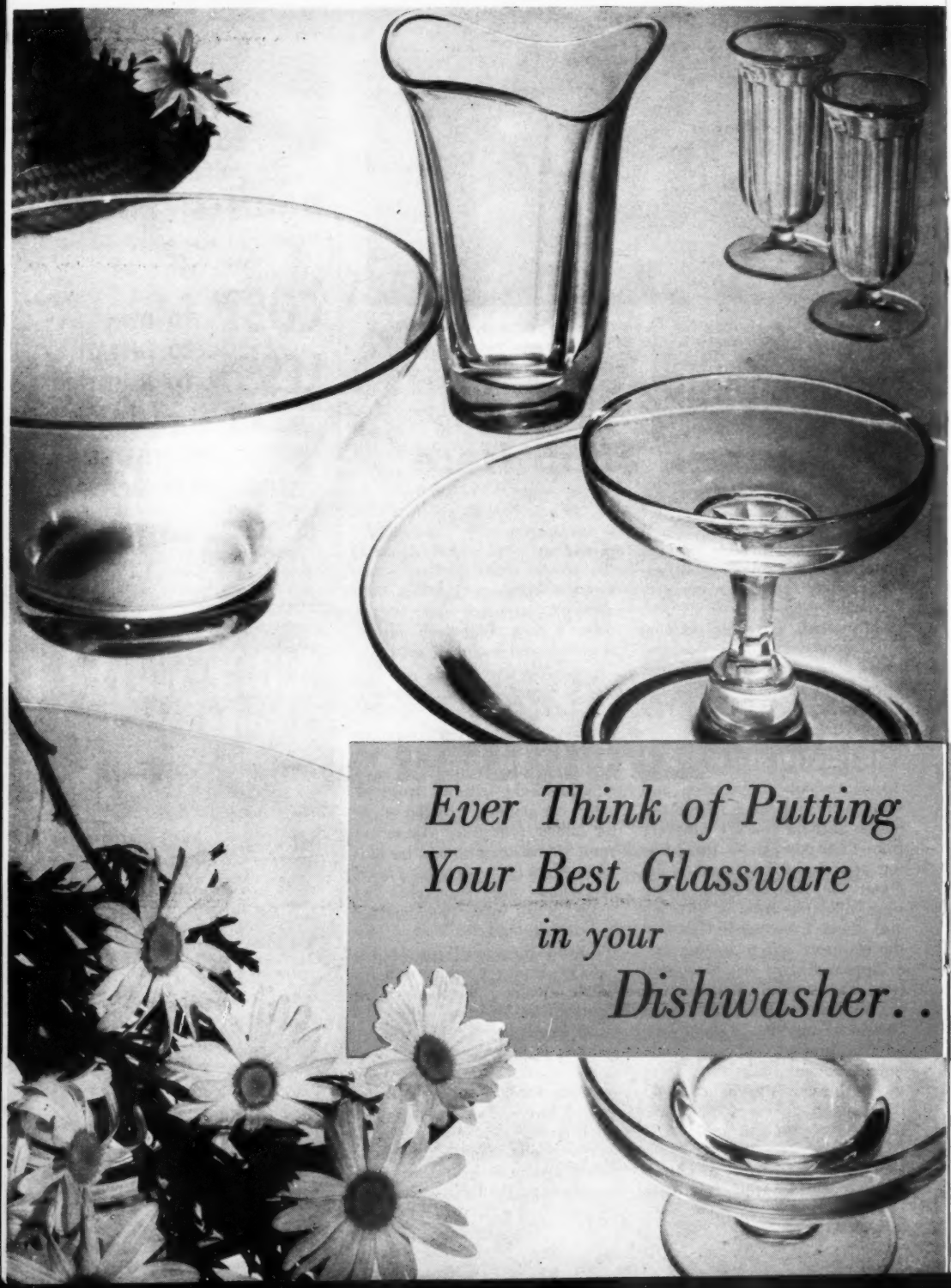

Ever Think of Putting
Your Best Glassware
in your
Dishwasher. . .

SUMMER LIVING for farm folk means more company, more meals, more dishes to wash. For this reason, no doubt, much of your china and glassware remains unused on the shelf during winter months. Even in the cleanest house it will gather dust and what a job of dishwashing that turns out to be when the first rush of company is on its way!

We bet you never thought of an automatic electric dishwasher as a spring cleaning tool but that's just what it is! It adds up to a real time-saver when you clear the china closet, shelf by shelf, and put the contents into the dishwasher. Everything goes in, including delicate glassware and fine china. Odd-shaped bowls and vases such as the lovely ones pictured here come out sparkling clean and dry with no effort on your part.

While the dishwasher works, you can do some gardening. Then come in, refill the dishwasher with another load and again let it do all the washing, rinsing and drying.

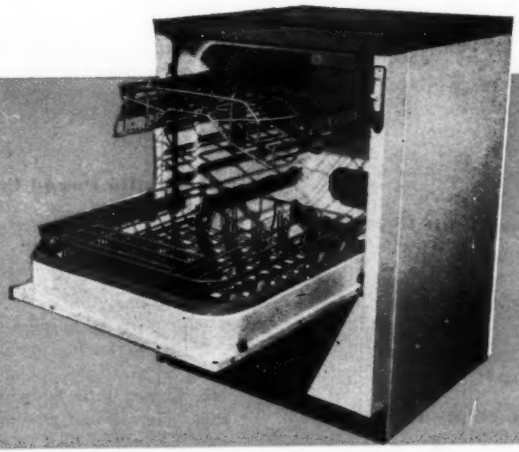
Perhaps you cling to the old-fashioned notion that a dishwasher is not safe for delicate tableware? Dismiss the thought at once because trays in dishwashers are vinyl coated to cushion and hold dishes. It is even *safer* to wash automatically—no danger of dishes slipping out of soapy hands or accidentally knocking against sink or faucet.

For this type of spring-cleaning-dishwashing, it isn't necessary to use a detergent unless you think a film of grease has coated dishes. Good hot water, "scrubbing" the dishes by action of the dishwasher, will give efficient results.

If you notice water spotting on glasses and silver, Culprit Number One is hard water. Check your water softening agent if you use one; if not, have water grain hardness tested to determine whether a water softener is required.

Condition of water in your area may also require use of a rinsing agent, automatically injected into last rinse water. This small amount of liquid makes water "wetter" so it will slide off surface of glass and evaporate during drying cycle.

Not only at spring cleaning time will you find an automatic electric dishwasher helpful but all during the summer it can relieve you of a hot, unpleasant, three-times-a-day chore. With this appliance in your kitchen, each new carload of guests coming up the lane will be a pleasure instead of a burden.

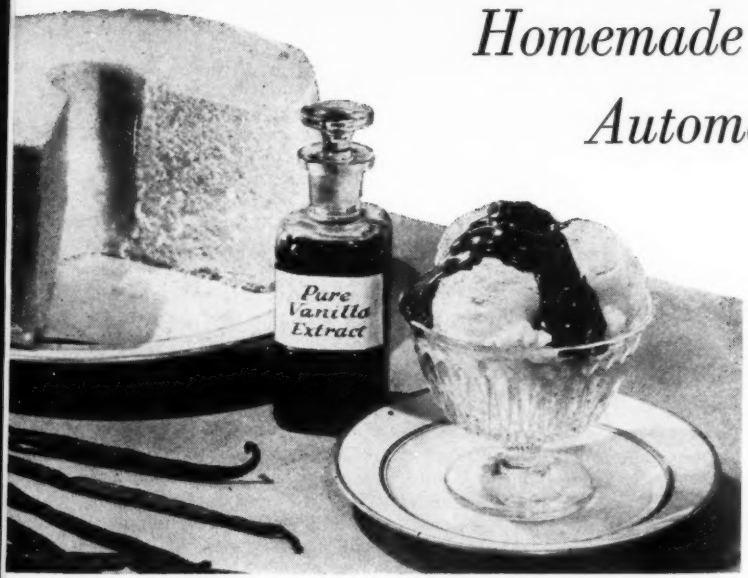


...go ahead, it's simple!

Here's how you do it!

THE FARM HOME BY RUTH GAFFNEY

Homemade Ice Cream—Automatically!



Above, *What's missing from old-fashioned wood bucket ice cream freezer with copper trim? Answer: hand crank to turn dasher. Electricity does all the work now.*

OUR 8-YEAR-OLD DAUGHTER was enthusiastic about the prospect of eating real homemade ice cream. That is, until we made it one hot summer day using the hand-crank method. Her query "do you think it's really *worth* it?" gave us pause. Was there an easier way? Of course—an electric ice cream freezer would take all the work out of it!

The following recipes should encourage you to try your hand at making this delicious treat.

Foundation Mixture for Ice Cream

2 eggs, separated
¼ cup white corn syrup
2 tsps. vanilla
1 cup milk
¼ cup sugar
1 cup whipping cream

Scald milk; combine egg yolks and sugar and add to milk. Add corn syrup and cook until mixture coats spoon. Cool; fold in two stiffly beaten egg whites, vanilla and whipped cream. Freeze.

Serve with your favorite chocolate or caramel sauce, or sprinkle with coarsely-ground coffee. Yield: 1-quart.

Any of the following variations are delicious, using foundation mixture: Add ¼ cup chopped dates and 1 cup chopped walnuts • Caramelize to golden brown half the sugar used in making foundation and add to hot-milk before adding egg yolks. • Add two tablespoons orange marmalade • Add one cup Grape-Nuts • Add 1 cup chocolate cookie crumbs or 1 cup almond macaroon crumbs. These additions will increase the amount of mixture.

Fresh Fruit Ice Cream

To 1 quart of the foundation ice cream add one pint mashed strawberries, raspberries, pineapples, peaches, or bananas—sweetened to taste—and freeze. Makes 2 quarts.

Chocolate Ice Cream

To 1 cup milk, add 1 square chocolate and 16 marshmallows and melt in double-boiler over hot water; stir constantly. Cool. Add 1 cup whipped cream, 1½ teaspoons vanilla and pinch of salt. Freeze. Makes about 1 quart.

For those who feel that ice cream is not complete without cake, here is a wonderful recipe for a very rich, old-fashioned pound cake.

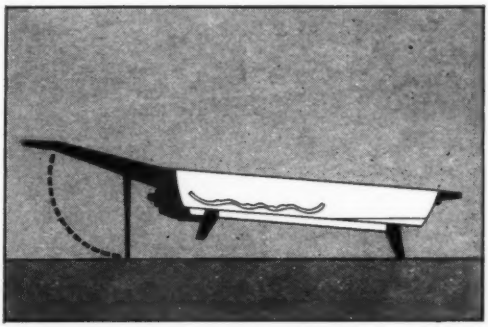
Vanilla Pound Cake

1 lb. butter
2 cups sugar
½ teaspoon salt
8 eggs
2½ teaspoons vanilla
4 cups sifted all-purpose flour
2 teaspoons baking powder

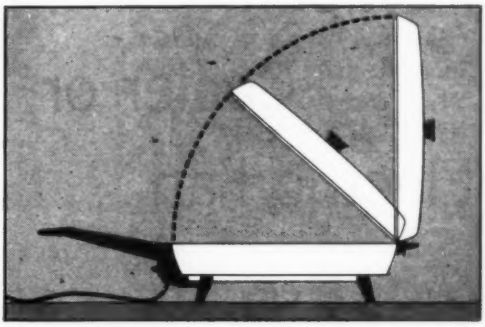
Mix butter until fluffy. Combine sugar and salt and gradually blend into the butter. Beat in eggs, one at a time; add vanilla. Sift flour with baking powder and gradually stir into the mixture. Turn into an ungreased 10 x 4-inch tube cake pan. Bake in preheated slow oven (325° F.) 1¼ hours, or until done. Turn out onto wire rack to cool.

New General Electric Skillet tips up . . . drains while it cooks!

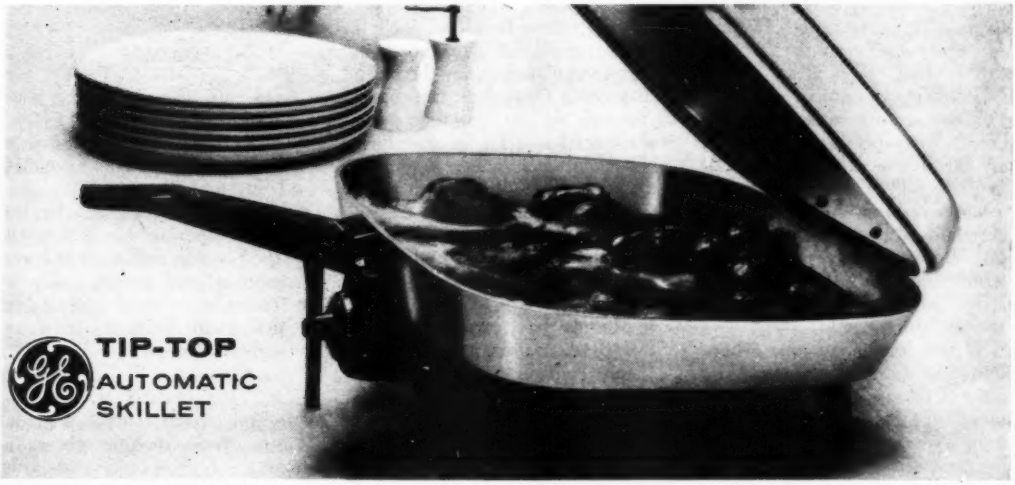
New 2-position top helps to control spatter



The TIP is new . . . At a touch, an ingenious fifth leg swings down from the handle. It tilts the skillet just enough to drain fat away from fried foods—so you pan broil bacon crisper, for example.



The TOP is new . . . Now you can tuck the cover into the helper handle—part way up, to help control spatter—or all the way up, when you want to stir or serve food. And the cover's completely removable, too.



For the first time—you can now get perfect *pan broiling*, automatically. This skillet *fries, bakes, stews, too!* Just dial the temperature you want; you get flavor at its peak.

Lots of other wonderful features! The General Electric Automatic Skillet gives you extra-dependable temperature control . . . no burning. Control's removable so you can immerse the skillet completely for extra-easy cleaning.

See the wonderful new General Electric Automatic Tip-Top Skillet at your dealer's now! General Electric Co., Bridgeport 2, Conn.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Evaporative Cooler or Electric Fan . . . Which Do You Need?

This portable evaporative cooler is 18" wide, 13" deep and 14" high. Easy-to-roll matching stand available as accessory.

IN HOT, DRY CLIMATES cooling with water evaporation is as old as recorded history. An up-to-date way to achieve this cooling effect is by use of a portable evaporative cooler.

What is an evaporative cooler? It is simply a fan drawing air through a moistened, built-in pad or filter. It also contains a water reservoir, with pump to circulate water through the filter. Result is cool, moist air which gives a "spot cooling" effect when one is directly in the air stream.

If you live in an area where humidity is high it would be natural to say 'but I don't want moisture put into the air—I want to take it out!' and you would be right. In spite of this, these coolers have proven popular in all areas of the country and there is a good reason for it.

Stop to consider that even in areas normally considered humid there are certain hours of the day in summer when humidity is low and an evaporative cooler can make you feel cooler. When humidity starts to climb, water valves on the cooler may be closed and cooler will operate as a simple fan.

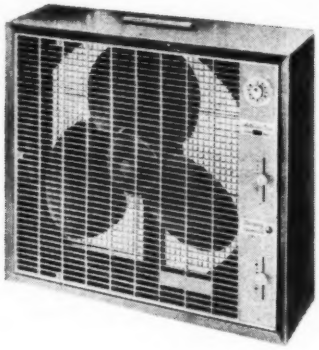
This appliance works best in a well-ventilated room—the more air passing through it, the cooler you will feel. At least one manufacturer has a kit for installing his cooler in a window, similar to an air conditioner installation.

When shopping, here are some details which should prove helpful:

- Models have from 1/20 to 1/6HP. motors and pushbutton controls. They will deliver moist air at velocities up to 2200 feet per minute.
- Capacity of water reservoir varies from 3 to approximately 8 gallons. A water-level indicator tells when reservoir needs refilling.
- You'll find coolers with filters up to 1160 cubic inches in size. Some are chemically treated to combat germs, odors and mold. Special activated charcoal filters and purifiers fit over air inlet louvers and absorb smoke and other irritants.
- At least one unit features a built-in germicidal ultraviolet lamp to kill germs.
- Another unit features a heater which operates on 120-volts, 1650 watts and does not require special wiring.
- Thermostats and adjustable grilles are featured in more expensive models.

ELECTRIC FANS both ventilate and circulate air in a room. Air in gentle motion creates a feeling of freshness and aids your body's "cooling system" by helping to evaporate natural moisture on surface of the skin.

Some types of electric fans do both jobs—circulating and ventilating—while some will do only one or the other. It is well to first determine your needs and then select a type to suit you.



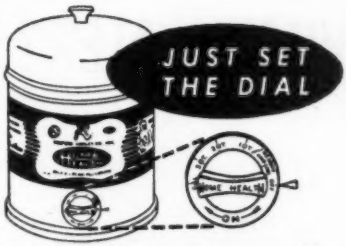
Above, *New design is this rain-proof, filter fan to install in window—interior glides out to bring in fresh air, pushes in to circulate room air.* Left, *20-inch window fan exhausts air; use it as portable fan in room to circulate air.*

Fans come equipped with various types of controls. Window fans, which both ventilate and exhaust air, may be controlled thermostatically to turn on and off as the temperature changes. Some even have clock switches to turn them on and off automatically at a predetermined time.

How to determine size you need.

Two factors must be considered: cubic feet of air to be circulated (room dimensions, times ceiling height) and number of times the air is to be changed per minute. Fans bear CFM (cubic feet per minute) ratings on their nameplates. If you have a room 20′ by 12′ with an 8′ high ceiling, and you live in a hot climate, a fan that will move 1920 cubic feet of air per minute will be needed. In a milder climate, circulation of air every two or three minutes is sufficient. Consequently, for same size room, a fan with 1000 CFM will serve your needs.

In addition to cooling the home in hot weather, electric fans may be used all year to air closets, hasten drying of rainwear, and to clear smoke from living areas. When rooms have been newly painted, a fan will keep air fresh and activated. □ □



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Now you can pasteurize the amount of milk you need as you need it . . . one, two, three quarts or a gallon at a time. Just set the dial for the right amount . . . the rest is automatic. The only home pasteurizer with this new engineering development that takes far less time yet assures greater accuracy. Laboratory tested for complete kill of all harmful bacteria.

CUTS PASTEURIZATION TIME 40%

You can pasteurize a gallon in 40% less time . . . a quart in less than 15 minutes! Makes it easier, quicker, than ever to have disease-free milk.

COLORS ***to match your kitchen***

Available in decorator colors of yellow, pink, turquoise, and white. You'll be proud of its beauty, its convenience, its dependability. 1 gallon capacity. Guaranteed for 1 year.

Ask to see the new HOME-HEALTH "Quick-Set" Pasteurizer at your dealer or write for FREE FOLDER.

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Most stylish 36" range ever made for YOUR kitchen

Monarch
SINCE 1896

The answer to your need for a new cooking outlook — renewed confidence in your kitchen's appearance. Designed to speed your daily food preparation — automatically, economically. Glass lined "take-out" oven sides for easy washing. Rotisserie — many other features for a new adventure in cooking.

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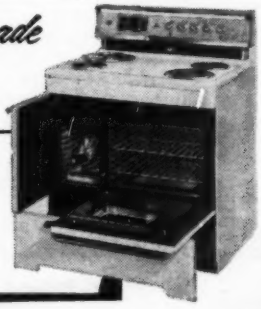

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Kendallville, Indiana

The 'RED WATER' Problem

LIFE BLOOD OF AGRICULTURE WATER

Iron and bacteria *can* be removed

The "red water" problem caused by iron and iron bacteria is well-known to many farm families. Mr. & Mrs. Evan Diehl of Whitewater, Wisconsin, experienced the noticeable trade mark of iron water: rust stains on the bath tub, toilets, sinks; brownish-red discoloration of clothes; metallic drinking water; and muddy, off-tasting coffee. Equally important, they were concerned with the damage the iron water would cause to their water pump, heater, furnace, and water pipes.

Positive Solution Required

Since pure water rated so high on the Diehls' list of necessities, they knew something positive must be done. Diehl looked into the matter thoroughly and was surprised to find that the root of his iron water problem was twofold: iron bacteria as well as metallic iron.

Iron bacteria are living organisms that feed on iron in the water and in the water pipes. The most obvious indication of the presence of iron bacteria is the formation of a brownish red slime on the inside of the toilet water closet. Although these particular bacteria do not cause disease, they often result in expensive repairs to the water pump, heater and piping. They are particularly troublesome because their concentrated attack causes severe "pitting" rather than an even erosion of pipe surfaces. Iron bacteria also multiply rapidly, clogging water pipes. Because these are tiny living organisms, they must be killed by chlorination for complete elimination.

Metallic iron is colorless in water so long as it is completely dissolved. As soon as it is exposed to air, bleach or boiling, it will precipitate as reddish brown particles. These iron particles will stain clothing, milkhouse equipment, bath-

Type of system used to solve the Diehls' iron water problem includes chlorinator and dechlorinator. Ordinary laundry bleach (bottle at lower right) is used as source of chlorine in the system.

room fixtures, and will clog pipes. To protect the water system, the iron should be filtered out after it has been thoroughly precipitated by chlorination. The filter can be of the type that removes chlorine also, so that no unpleasant taste will be present in the water system.

The basic equipment installed at the Diehls' for elimination of their iron and contamination problem consisted of two components: the simple automatic chlorinator operating in conjunction with the well pump, and a compact dechlorinating filter installed on the outlet pipe of the water pressure tank. The chlorinator automatically discharges chlorine into the water line before the pump, for protection of the pump and piping system. The chlorine kills the iron bacteria, precipitates the iron and also kills any disease bacteria.

The dechlorinating filter mechanically removes all the precipitated iron and also all the chlorine after it has done its job. The resulting water throughout the house is brilliantly clear, delicious tasting and free from all iron and bacteria.

Safe Water a Necessity

Protection from disease bacteria is one of the most important considerations in any farm water system. The history of man has shown that water can be as strong an enemy as it is a friend. Perhaps one of the basic reasons that it is often such a formidable enemy is that deadly disease organisms which it may carry cannot be seen, smelled or tasted. Hence the water may look sparkling pure when actually it is laden with disease.

The "ounce of prevention" of including automatic chlorination with each water system as a continuous barrier against disease is well worth serious consideration. □ □

Fashions With Slim Lines, Flares

9289—Graceful step-in style has crisp little collar, pockets. Printed Pattern in Half Sizes 14½-24½. Size 16½ takes 3¾ yards 35-inch fabric. 35¢

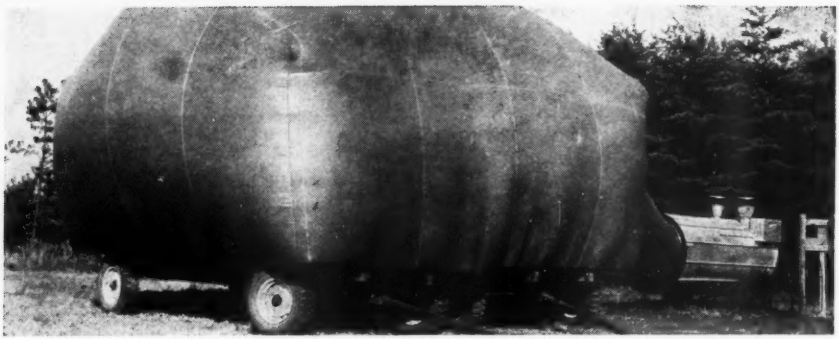
9219—Sew raglan-sleeve version or halter style with one Printed Pattern. Child's Sizes 2, 4, 6, 8, 10. Size 6 halter style takes 2½ yards 35-inch fabric. 50¢

4920—Becoming style for the larger figure. Note smartly draped neckline, slim skirt. Printed Pattern in Women's Sizes 36-48. Size 36 takes 3⅜ yards 39-inch fabric. 35¢

9342—Summer partners—sundress and button-on capelet. Printed Pattern in Half Sizes 14½-24½. Size 16½ dress takes 3⅞ yards 35-inch fabric; capelet ⅞ yard. 35¢.

Send orders (with coin) to: ELECTRICITY ON THE FARM, Pattern Department, P. O. Box 122, Old Chelsea Station, New York 11, N. Y. Add 10¢ each for 1st-class mailing. Send 25¢ for our full-color Catalogue of Summer Fashions.

No. 2 National Orange Edition



Cover, made of new synthetic fabric, encloses two wagons and weighs 109 lbs. New fabric, 10 oz. vinyl-coated laminated nylon, retains 99½% of the air and 97.2% of the heat from the drier, is also more durable than canvas covers. The temperature of the air beneath the cover is kept at 140°F. or higher.

North Carolina researchers come up with a

NEW-STYLE WAGON HAY DRIER

By JOHN W. WEAVER, JR.*

Artificially-dried hay has a marked superiority to field-cured hay. Some leaves are always lost when hay is completely cured in the field, whether a conditioner is used or not. And about ⅔ of the plant's nutritive value is in the leaves.

Wagon-drying and field-curing of alfalfa hay were compared in six North Carolina State College tests last summer. The alfalfa was taken from the same fields and cut and crimped at the same times. The wagon-dried hay averaged 19% more leaves and 17½% more green color, both of which indicate a higher content of protein and carotene.

Feeding trials elsewhere indicate this difference in the nutritive value of artificially-dried hay will substantially affect dairy production. Increases of 700 lbs. of milk and 45 lbs. of butterfat per cow per year are not uncommon.

Wagon Drying Saves Labor

Overnight wagon drying eliminates almost all hay losses due to rainfall at harvest time. Hay is baled for drying at 35-45% moisture content. With the covered wagon drier, hay is dried in the same wagons which are loaded in the fields, whether loading is done mechanically or by hand. This eliminates the handling involved in barn cur-

*Prof. Agric. Engrng., N.C. State College

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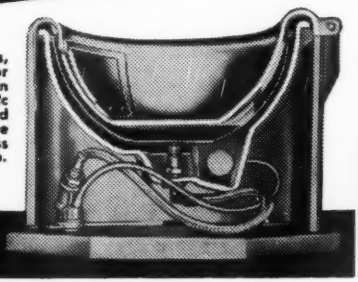
ONLY one moving part—no floats, levers, or springs to jam because of rust or corrosion. Provides clean, fresh water in summer; warms water in winter for 2c a day because thermostatically controlled electric heating element heats a mere bowlful instead of a tankful. Stainless steel and aluminum alloy construction. Completely automatic. Safe!



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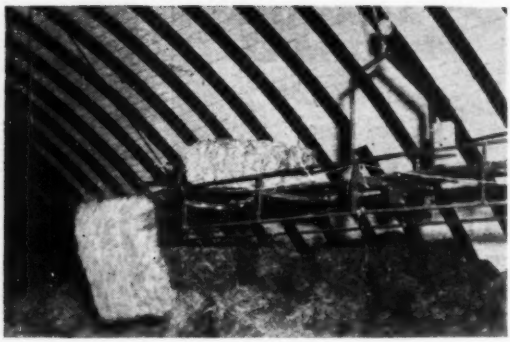
Van Dusen & Co., Inc., Wayzata, Minn.
SAVE TIME & LABOR MAKE MONEY

Baler kicks baled hay into trailing wagon. This results in random loading that increases capacity, lowers cost of drying.



Small bales, after drying, are easily stored in mow with mechanical conveyors. Bales are dumped at random right or left.

ing and the necessity for a special curing barn.

Drying costs average about $4.50 per dry ton. This is based on 15¢ per gallon for fuel oil and 2¢ per KWHr for electricity. A two-wagon system handling 4 tons a day will cost from $2800 to $3000 for the drier, wagons, bodies and best type of cover. These systems can be operated five times a week when weather is favorable.

Hay Conditioners Are Helpful

If alfalfa hay is "conditioned" with a crimper or a crusher at cutting time it can be picked up by a baler for wagon drying from 30 minutes to 2 hours sooner than where it is not conditioned. All hay conditioners are more effective on plants with large stems such as soybeans. Here the time gain is usually 4 hours or longer. While hay conditioners are helpful in stepping up the field drying they cannot in themselves produce a quality like that attained with a good drier.

The new baler attachment which "kicks" bales up and back into the trailing wagon gives a random loading that actually doubles the capacity of each wagon and lowers drying costs. This is because the bales are loaded to a depth of 7 or 8 feet instead of the 3½ to 4½-foot depth normal for hand loading. The greater depth is needed to pack the random-loaded bales closer together so hot air will not rush between them.

For random loading, the bale size should be about 14 x 18 x 19 inches. Bales of this size roll or tumble easily to load the wagon evenly. They weigh 18-23 lbs. when baled and 14-17 lbs. after drying. These dried bales do not come apart in handling as easily as freshly-baled hay from the field.

The drier is started as soon as the wagons are covered in late afternoon and runs through the night. Drying is completed in 10 to 18 hours, the average being 14½ hours. The fan must run for an hour after heat is cut off to cool out the hay. When drier is started at 5 p.m., the hay is dried, cooled and ready for storage at 8:30 the next morning.

140° Temperature for Drying

To obtain this overnight schedule it is necessary to have the drying air at 140° or higher at all times. About 4000 cfm are needed for each hand-loaded wagon (3 bales deep), while about 5500 cfm are needed for each mechanically-loaded wagon (7-8 feet deep). When outside temperature is 70°, the drier must have a heat output of 305,500 BTU per hour for each hand-loaded wagon or 420,000 BTU for each mechanically-loaded wagon.

What Size Drier Is Needed?

Four hand-loaded wagons with total capacity of 4 tons of dried hay require a drier delivering 16,000 cfm at 2/10-inch static pressure and a heat output of 1,222,000 BTU per hour. Two mechanically-loaded wagons with the same 4-ton total capacity require a drier to deliver 11,000 cfm at 1¾ inches static pressure with a heat output at 840,000 BTU per hour.

A durable, lightweight cover material that will not leak water or air is necessary for the covered wagon drier to be practical. Covers made of a new synthetic fabric, vinyl-coated laminated nylon, have proven more serviceable and adaptable than covers made of 10-ounce shelter tent duck. The new fabric is 4 to 5 times stronger and will not shrink, rot or mildew if put away wet. It is flameproof and fire retardant. Laboratory tests show that it leaks only 0.5% of the total air forced in for drying and only 2.8% of the heat. Any tent or awning fabricator should be able to make the cover.

Plans for the wagon body and cover are available from the Department of Agricultural Engineering, North Carolina State College, Raleigh, N. C. □ □

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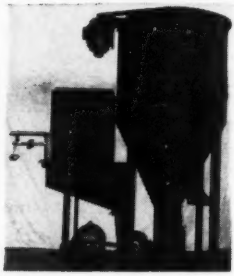
Save up to **20%** *of your feed cost, with the*

FEEDER'S FRIEND



Capacity Per Hour		Add For Single Phase
2 Tons	$1645.00	$275.00
3 Tons	$2000.00	$522.00
4 Tons	$2415.00	$657.00

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BAILEY BROODERS

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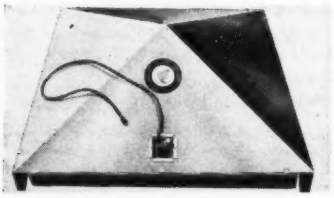


New automatic dial control —no thermometer needed.

With a Bailey Electric Brooder you are assured of lower brooding costs, constant temperature and completely safe operation. Why? Because this 750-chick, quality constructed brooder was designed by experienced poultrymen with the advice of agricultural and electrical engineers.

Georgia Poultrymen report the Bailey electric brooder cuts wintertime brooding cost ½ cent per chick.

What's more, Bailey Brooders are clean, safe and convenient. No wonder more than 4,500 of these units are in operation on Georgia broiler farms. Write today for information on how you can substantially increase your broiler profits by installing Bailey Brooders.

Insurance policy covering power failure available exclusively with Bailey Brooders at a nominal charge.

L. H. BAILEY & SON

859 West Broad St.

LI 3-5281 **Athens, Ga.**

Mechanical refrigerating unit designed especially for cooling eggs keeps temperature at 45°, humidity at a constant 80% in Debters' egg storage room.

Once lost, never regained . . .

Refrigerate Eggs to Retain Quality

The quality in an egg is much like time. Once it is gone, there is no way to reclaim it. And with warm days here again, it does not take very long for eggs to lose their quality. That is why producers are advised to collect eggs several times a day and get them into a refrigerated storage room as soon as possible.

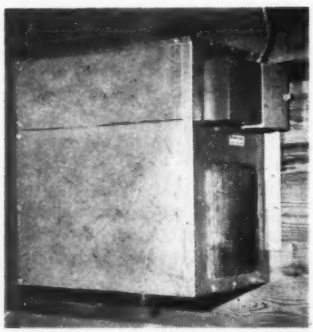
Ross and Glynn Debter of Horton, Alabama, gather eggs from their 12,000 layers four or five times a day as a first step in their program to give customers as good an egg as possible.

They have two egg storage rooms, giving them capacity of 640 cases. In the storage rooms they maintain a temperature of 45°, sufficient for Grade-AA market eggs. And they keep the humidity at 80%.

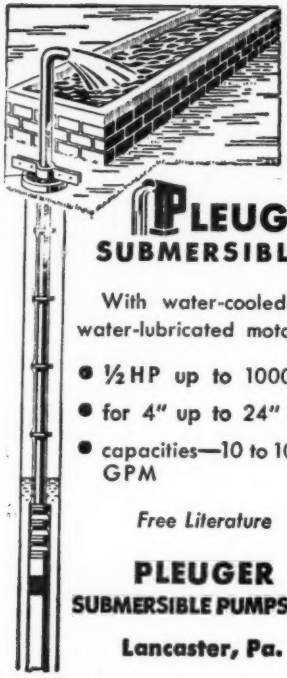
To assure these ideal conditions, they use mechanical refrigerating units designed especially for cooling eggs. In the room that holds 390 cases, they have a 1-ton unit. A smaller room is equipped with a ¾-ton unit.

The Debters built their egg rooms inside an existing structure. They used tongue-and-groove lumber for the outside walls and a non-porous material on the inside. The walls have 4 inches of insulation with vapor barriers on either side. Insulated doors have rubber gaskets that insure a tight seal.

Another feature of the storage rooms is that they are almost square with relatively low ceilings. This permits more efficient refrigeration. □ □



Unit is set into wall of storage room. Tongue-and-groove lumber is used for outside wall. Inside is pressed fiberboard.



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- for 4" up to 24" wells
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THAT *DEFINITELY*
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WHATEVER happened to the WONDERFUL type of woman who couldn't STAND to have a man underfoot when she was doing the housework? . . . . SODDEN THOUGHT: KICKING gets you NOWHERE unless you're a CHORUS GIRL. . . . . SNICKER-SNORT-OF-THE-MONTH: SON: "Daddy, why does the fire whistle blow for a fire?" DADDY: "It DOESN'T blow for a fire, it blows for water; they've ALREADY got the FIRE." . . . . FLIP QUIP: Another difference between men and women is that WOMEN NEVER brag about the ones that got away. . . . . RETOUCHER: a confirmed BORROWER. . . . . When a novice heavyweight asked Jack Dempsey for advice, the ex-champ said: "Keep your chin in, and your seat off the floor." . . . . EVERSTOPTOTHINK?—NOTHING is MORE responsible for the GOOD OLD DAYS than a POOR memory. . . . . Sign on a laundry: "LET US HELP YOU LEAD A CLEAN LIFE." . . . . The number of blasts that come from auto horns in a traffic snarl is equal to the sum of the squares at the wheels. . . . . "Crop failures?" asked the old timer. "Yes, I've seen a few. Back in '98 the corn crop was almost nothing. Mother cooked some for dinner and my father ate fourteen acres at ONE sitting." . . . . DOCTOR (after bringing patient to): "Didn't you read the sign on the bottle? It says 'POISON.'" PATIENT: "Yeah, but read right underneath it. It says 'LYE.'" . . . . College man's idea of a perfect date: She doesn't eat much. She's good looking. She doesn't eat much. She's a good dancer. She doesn't eat much. . . . . OVERHEARD: "So you've gone back to your wife?" "Yes, I didn't realize HOW much she meant to me until the judge set the alimony." . . . . JINGLE-JOLLY DEPT.: I interviewed a cannibal; His hair was dark and wavy; He said he loved his fellow man, ESPECIALLY with GRAVY. (Author Unknown). . . . . Our friend Ole sez: "The reason I eat smorgasbord is because I have a SWEDE tooth." . . . . PARTING THOUGHT: Women like the STRONG, SILENT type of man. They THINK he's listening. . . . .

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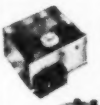

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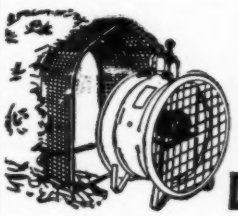

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RESEARCH NOTES

By J. P. SCHAENZER

Heat in the poultry house has been reduced by as much as 10°F. at bird level by running water over the roof with a sprinkler system.—*Virginia Polytechnic Inst.*

Large hay wafers are better than baled hay in that they take less storage space, are easier to self-feed, leaf loss is less, and dustiness is reduced.—*H. D. Bruhn, Univ. of Wisconsin*

When field-shelled corn was dried at 280°F. it had a marked brown color, parched odor and losses in protein nutritive value. —*USDA, ARS*

Irrigation of tomatoes for 5 years increased early and mid-season yields slightly, and late and total yields significantly. For all varieties the increase averaged 1.54 tons per acre, or 17%.—*Cornell Univ.*

Mechanical refrigeration is needed to market quality eggs. For Grade-AA, 45° is recommended, and for Grade-A, 55° or lower.—*E. D. Parnell and R. C. Jaska, Texas Agr. Exp. Sta.*

Storing peaches for a single day at 25-30°F. affects their quality more than keeping them for a year at zero.—*USDA, Western Regional Research Lab., California.*

A milking barn exhaust fan blowing into the holding pen cools the cows so that they crowd the gate to get inside to be milked in comfort and reduces the flies.—*Thayer Cleaver, Univ. of California*

Wheat threshed between 14 and 20% moisture must be dried. Minimum air flow for 20% is 5 cfm per bushel; for 18%, 3 cfm; and for 16%, 2 cfm per bushel. —*William H. Johnson, Ohio State Univ.*

For a labor income of $3500, a total farm investment of $30,000 is required for a livestock-cotton farming system, and $25,000 for a Grade-A dairy.—*Univ. of Tennessee*

Tests conducted on farm bulk milk cooler installation showed new type ice bank cooler to cool 100 lbs. of milk with .83 KWHr at average milkroom temperature of 75°F.—*Young's Dairy, Twin Falls, Idaho, Jack Thompson*

Colonies of bees under full shade produced 41 lbs. more honey, and those under part shade, 21.1 lbs. more honey, than those under no shade.—*Charles D. Owens, USDA and Univ. of Arizona*

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Not temporary relief, but permanent year-in, year-out service with a DIAMOND 3T Unit. Periodic checks of salt supply is all that's required. Four sizes. Eight capacities. Completely guaranteed.

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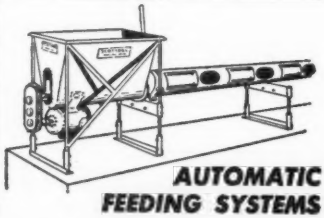

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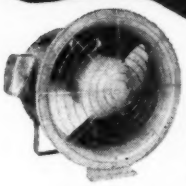
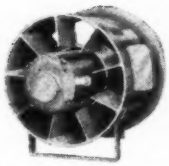
bring NEW EFFICIENCY, NEW DEPENDABILITY,

to DRYING GRAIN in STORAGE





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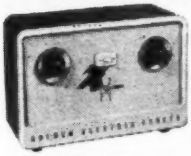
Electric Fencers

clip weeds on contact —cost only **$1.25** per year *to operate*



Confine livestock with one wire—even on dry ground. HoL-DeM fencers have dual signals, Saf-Tee Chopper with circuit breaker. Guaranteed against lightning.

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Automatic watering bowl assures livestock continuous supply of fresh water. It is securely fastened to the concrete floor by four expansion bolts.

Livestock Need Fresh Water Year-Round

An abundant supply of fresh water is important to the growth and production of livestock the same way it is to the health of people. Automatic water-warming units assure a constant supply of fresh water for livestock in all seasons.

John C. Lester Jr. of Forest, Virginia, uses such a water bowl in his pig parlor. His hogs have made better gains since the waterer was installed. The bowl holds less than a gallon, which means that water is fresh in all seasons, warm in winter and cool in summer. The unit has a 50° F. thermostat and 200-watt heating element. All water pipe and electrical connections are enclosed in the base of the waterer which is fastened to the concrete floor by four bolts. A valve provides protection against backward flow into the water system.

For Lester, the automatic water warmer has afforded a continuous supply of fresh water. He can see the difference in his hogs. □ □

SHALLOW WELL NOW? DEEP LATER?

DOES BOTH...

...and for *less* than the usual price of a *single*-purpose jet pump! This high-quality electric jet water system converts quickly from shallow to deep well (90-ft.) operation by simply adding pipe and transferring jet unit to well-bottom. Up to 835 gal. per hr. Up to 50 lbs. pressure. Fits compactly under kitchen sink! Completely equipped. Hefty ½ or thrifty ⅓ HP ball bearing motor.

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DEMPSTER MILL MFG. CO.

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DRAINS cellars, cisterns, wash tubs; **IRRIGATES · CIRCULATES · SPRAYS** **7.95**

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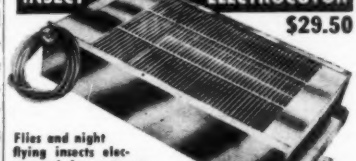
INSECT ELECTROCUTOR **$29.50**



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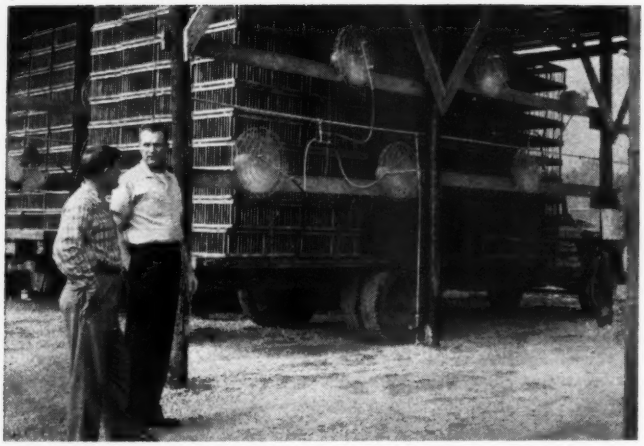

Fan-foggers arranged in groups of three circulate cool, moist air through loads of broilers parked in shed awaiting acceptance at poultry processing plant.

It pays to keep them cool . . .

LIFE BLOOD OF AGRICULTURE WATER

Fan-Fogging Protects Poultry in Parked Trucks

Here is a use for fan-foggers which is not only different, but has proved profitable for John Bagwell Farms at Jasper, Alabama.

At the processing plant where Bagwell broilers are marketed, a shed has been erected to provide shade for truckloads of broilers awaiting acceptance by the plant. Even in the shade, shrinkage and mortality rates run high during the summer.

Last year a system of fan-foggers was installed to keep moist air circulating through the crates of broilers. Six fans were used for a bob-tail truck (2800 birds) and nine fans for the trailers (2800 birds). The fans, located to blow from one side of the trailer, have proved very effective, according to Comer Sessions, who is in charge of the broiler receiving station.

He says that on a hot day a trailer of 4800 birds may have a shrinkage of 500 to 700 lbs. after standing one hour. Mortality in the spring before the fan-foggers were installed was running from 25 to 75 birds per trailer. In the warmer months that followed, the fan-foggers are credited with cutting this mortality in half and substantially reducing the shrinkage.

The fans have ⅓ hp motors and two nozzles that spray a continuous mist in front of them. Sessions says this system proved much more effective than using a larger fan to move air along the length of a trailer. One big advantage of the system of fan-foggers, he emphasizes, is that it circulates air to all of the birds on the trucks or trailers. □□

ADVERTISERS

in this issue . . .

Whenever you need further information about electrical equipment and appliances, you can depend upon the Manufacturers who are advertising in this magazine. We have indexed here for your convenience in alphabetical order the Manufacturers whose advertising is appearing in this May issue.

When writing to these Manufacturers be sure to mention you saw their advertising in ELECTRICITY ON THE FARM Magazine.

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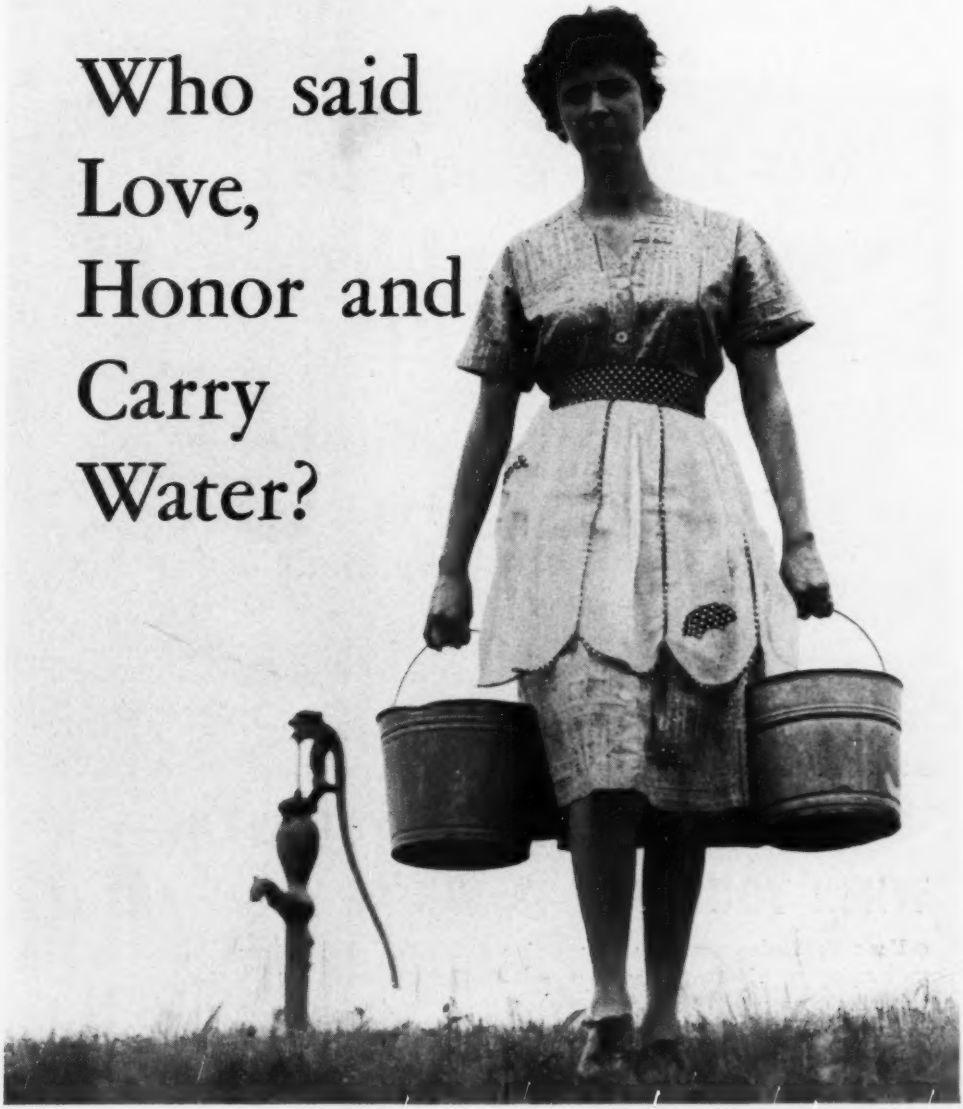
If you are unable to get information about the particular equipment you require from our advertisers as listed above, our Reader Service Department will be glad to help you. As a reader of this magazine you are entitled to this information service free of cost.

Who said Love, Honor and Carry Water?



Who wants to carry water? *You don't have to pump and carry water, or rely on an out-dated electric pump that gives only half the water you need. A modern Myers OLYMPIAN Pump carries the water for you. Puts it where you want it, quickly, quietly, economically. See your Authorized Myers Pump Dealer, today. He'll engineer a water supply system tailored exactly to your needs.*

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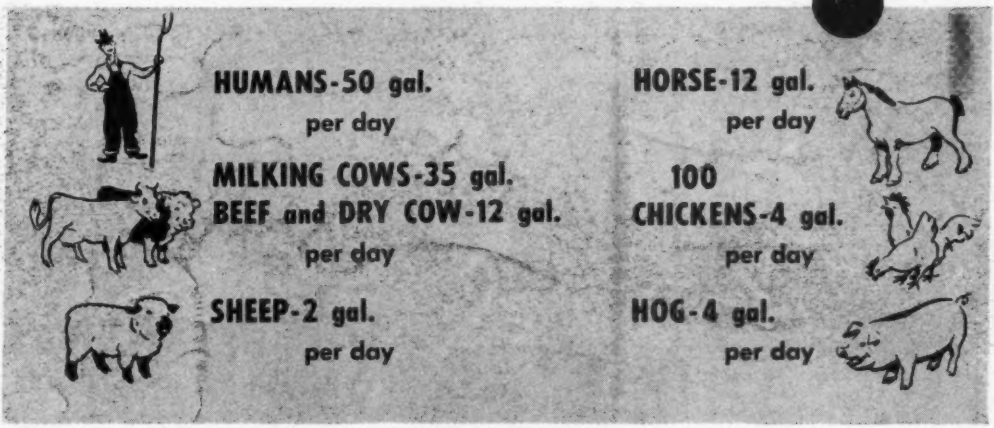

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